

CLAIMS:

1. A method for reducing line-to-line capacitance, comprising:
 - 2 forming a low dielectric constant (K) material over a semiconductor substrate;
 - 4 forming a standard K material over the low-K material;
 - 6 forming a conductive material proximate the low-K material and the standard K material; and
 - 8 forming a barrier layer disposed between the low-K material and the conductive material before forming the conductive material.
2. The method of Claim 1 wherein forming the low-K material comprises
 - 2 forming the low-K material from a material selected from the group consisting of a hydrogen silsesquioxane, a methyl silsesquioxane, a polyarylene ether, a
 - 4 fluorine-comprising silicon oxide and a carbon-comprising silicon oxide.
3. The method of Claim 1 wherein forming the low-K material comprises
 - 2 forming the low-K material from a spin-on low-K precursor material.
4. The method of Claim 1 wherein forming the low-K material comprises
 - 2 forming the low-K material employing a chemical vapor deposition process.
5. The method of Claim 1 wherein forming the standard K material
 - 2 comprises forming a layer of a silicon oxide material.

6. The method of Claim 5 wherein forming the layer of silicon oxide material
2 comprises forming the silicon oxide material employing a chemical vapor
deposition process.
7. The method of Claim 1 wherein forming the conductive material
2 proximate the low-K material and the standard K material comprises forming the
conductive material from a copper-comprising material.
8. The method of Claim 1 wherein forming the conductive material
2 proximate the low-K material and the standard K material comprises forming the
conductive material from an aluminum-comprising material.
9. The method of Claim 1 wherein forming the barrier layer comprises
2 forming a diffusion barrier comprising nitrogen.
10. The method of Claim 9 wherein forming the diffusion barrier comprising
2 nitrogen comprises forming the diffusion barrier of a material selected from the
group consisting of a silicon nitride material, a silicon oxynitride material, a
4 refractory metal nitride material, a hydrogen and nitrogen-comprising amorphous
carbon material and a silicon and nitrogen-comprising amorphous carbon
6 material.

11. The method of Claim 1 wherein forming the conductive material

proximate the low-K material and the standard K material comprises etching the low-K material and the standard K material to form a recess and forming the conductive material such that the recess is essentially completely filled with the conductive material.

12. The method of Claim 11 wherein etching the low-K material and the

standard K material comprises etching to form a plurality of recesses such that the plurality of recesses define a plurality of spaced apart dielectric-comprising blocks are formed, and forming the conductive material comprises forming such that each of the plurality of recesses is essentially filled with the conductive material such that a plurality of interconnects is formed, each interconnect separated from another by a spaced apart dielectric block.

13. The method of Claim 1, further comprising:

2 patterning the low-K material and the standard K material to form spaced
blocks over the substrate;

4 forming a conductive material over and between the spaced blocks;

 planarizing the conductive material to expose the standard K material of

6 the spaced blocks and to form an array of conductive interconnects between the
spaced blocks;

8 removing the exposed standard K material from over the low-K material
of the spaced blocks; and

10 forming a second layer of low-K material over the conductive material and
the low-K material of the spaced blocks.

14. The method of Claim 13 further comprising forming a conformal barrier

2 layer over the spaced blocks before forming the conductive material over and
between the spaced blocks such that after forming the conductive material a

4 portion of the conformal barrier layer is disposed between the spaced blocks and
the conductive material.

15. The method of Claim 14 further comprising removing portions of the

2 conformal barrier layer overlying an upper surface of the standard K material
prior to forming the conductive material.

16. A semiconductive processing method, comprising:

forming a low dielectric constant (K) material over a semiconductor substrate;

forming a sacrificial material over the low-K material, the sacrificial material not being a low-K material;

forming a conductive material over and adjacent the sacrificial material; and

removing the conductive material and sacrificial material from over the low-K material.

17. The method of Claim 16 wherein forming the low-K material comprises

forming the low-K material from a liquidus low-K precursor material.

18. The method of Claim 16 wherein removing the conductive material

comprises removing the material employing a chemical mechanical polishing process.

19. The method of Claim 16 wherein removing the sacrificial material

comprises removing the material employing a plasma etching process.

20. The method of Claim 16 further comprising forming a second low-K

material over the low-K material disposed over the substrate and the metal layer, after removing the sacrificial material.

21. The method of Claim 20 wherein forming the second low-K material
2 comprises forming the second material from a material selected from the group
consisting of a hydrogen silsesquioxane, a methyl silsesquioxane, a polyarylene
4 ether, a fluorine-comprising silicon oxide and a carbon-comprising silicon oxide
after forming a conformal barrier layer over the metal layer, the conformal barrier
6 layer selected from the group consisting of a silicon nitride material, a silicon
oxynitride material, a refractory metal nitride material, a hydrogen and
8 nitrogen-comprising amorphous carbon material and a silicon and
nitrogen-comprising amorphous carbon material.

22. A semiconductor processing method, comprising:
2 forming a low-K dielectric material over a substrate;
forming a second material over the low-K dielectric material;
4 patterning the low-K dielectric material and second material to form
spaced apart blocks over the substrate; and
6 forming a conductive material over and between the spaced apart blocks.

23. The method of Claim 22 further comprising forming a conformal barrier
2 layer over the spaced apart blocks prior to forming the conductive material.

24. The method of Claim 23 further comprising removing the conductive
2 material from over the spaced apart blocks to form a plurality of conductive
interconnects.

25. The method of Claim 24 wherein removing the conductive material
2 comprises removing the material employing a chemical mechanical polishing
process.

26. The method of Claim 23 wherein forming the conductive material
2 comprises forming a copper comprising material or an aluminum comprising
material.

27. A semiconductor structure, comprising:
2 a semiconductive material substrate;
a plurality of spaced blocks over the semiconductive substrate, the blocks
4 comprising a lower portion comprising a low dielectric constant (K) material and
an upper portion having a different insulative composition than the lower portion,
6 the upper portion defining a substantially planar upper surface of the block; and
a conductive material disposed between the spaced blocks, the conductive
8 material having an upper surface substantially planar and coextensive with the
upper surface of the block.

28. The structure of Claim 27 further comprising a barrier material disposed
2 between the conductive material and the spaced blocks, the barrier layer having a
first surface in contact with the lower portion, the upper portion and an opposing
4 second surface in contact with the conductive material.

29. The structure of Claim 28 further comprising:

2 a second barrier layer disposed over the upper surface of the spaced blocks
and the conductive material; and

4 a layer of dielectric material disposed over the second barrier layer, the
dielectric material comprising a low-K material and having an essentially planar
6 upper surface.

30. The structure of Claim 29 further comprising:

2 a plurality of contact openings disposed within the layer of dielectric
material, each contact opening extending from the upper surface of the layer of
4 dielectric material through the second barrier layer to a portion of the upper
surface of the conductive material; and

6 a second conductive material disposed within and essentially filling the
contact openings.